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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,880	03/22/2001	Nobuyuki Yokosawa	017447/0172	4203
22428	7590	04/27/2004	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			GILMAN, ALEXANDER	
			ART UNIT	PAPER NUMBER
			2833	

DATE MAILED: 04/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/813,880

Applicant(s)

YOKOSAWA ET AL.

Examiner

Alexander D Gilman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/31/2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-10 is/are allowed.
- 6) ☐ Claim(s) 1,3,4,6,7,11-17 and 20 is/are rejected.
- 7) ☒ Claim(s) 2,5,18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1, 3, 6, 7, 11-16, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Sumitomo et al

With regard to claims, 1, 3, 6, 7, 11-16, 20 Kim et al (Department of Material Science and Engineering of Dankook University – Han'guk Chaelyo Hakhoechi (2000), 10(1), 49-54)) disclose a phosphor excited by a vacuum ultraviolet ray, said phosphor consisting of a composition expressed by a formula:



Kim et al explicitly do not disclose the crystal structure of the phosphor

Sumitomo et al (US 5,386,176) disclose that the phosphor, having aluminum borate (col.1, line 45), has the crystal structure (col. 2, line 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Kim et al, the phosphor having crystal structure as taught by Sumitomo et al, to use the material with the sharp line fluorescence

2. Claim 1, 3, 4, 6, 7, 11-17, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Ballman et al.

With regard to claims, 1, 3, 6, 7, 11-16, 20, Kim et al disclose all of the limitations except for the crystal structure of the phosphor

Ballman et al (US 3,057,677) disclose the crystal system of rare earth aluminum borates (col. 2, lines 46-49).

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Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Kim et al, the phosphor having crystal structure as taught by Ballman et al, to use the material with the sharp line fluorescence (Ballman et al, col. 1, lines 21-29).

With regard to claims, 4 and 17, Kim et al when modified by Ballman et al specifically disclose (Ballman et al) rhombohedral crystal structure (col. 2, lines 53-54; and Table. 4, example 4).

***Allowable Subject Matter***

Claims 8-10 are allowed

Claims 2, 5, 18, 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

No prior art has been found to anticipate or render obvious the presently claimed subject matter.

Specifically, none of the prior art of record discloses the combination of the limitations presented including the specified amount of *Tb* in the composition (claims 2, 5);

the specified amount of *Ce* in the composition (claims 8, 18).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander D Gilman whose telephone number is 571 272-2004. The examiner can normally be reached on Monday-Friday, 10:30 a.m. - 8:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on 571 272-2800 ext. 33. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

03/05/2004

*Alex Gilman*

**ALEXANDER GILMAN  
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